From Pythagoras to Fourier and From Geometry to Nature

First Edition

From Pythagoras to Fourier and From Geometry to Nature

Paolo Emilio Ricci¹ and Johan Gielis²

¹ UniNettuno International Telematic University Corso Vittorio Emanuele II, 39 - 00186 Rome, Italy email: paoloemilioricci@gmail.com

² Department of Biosciences Engineering University of Antwerp, 2020 Antwerp, Belgium & Geniaal BV, Nottebohmstraat 8, 2018 Antwerp, Belgium email: johan.gielis@uantwerpen.be



Athena International Publishing B.V. Keizersgracht 520H 1017EK Amsterdam The Netherlands

© 2022 The Authors. Published by Athena International Publishing B.V.

This book is **Open Access** and distributed under Creative Commons license **CC BY-NC-ND 4.0** meaning that users are allowed to freely **share** the content (i.e. copy and redistribute the material in any medium or format) on the condition that proper **attribution** is given (i.e. appropriate credit, a link to the applicable license and an indication if any changes were made; all in such a way that does not suggest that the licensor endorses the user or the use), the material is only used for **non-commercial** purposes and if the material is remixed, transformed, built upon or otherwise modified **no derivatives** of the work may be distributed.

Notices:

- Users do not have to comply with the license for elements of the material in the public domain or where their use is permitted by an applicable exception or limitation.
- No warranties are given. The license may not give the user all the necessary permissions for the intended use. For example, other rights such as publicity, privacy or moral rights may limit how the material is used.
- No responsibility is assumed by the publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein.

First Edition 2022

Cover design: Pepijn van Haren, King & Jester, The Netherlands. Images used with permission.

This book is published online at https://www.athena-publishing.com

ISBN (Online): 978-90-832323-1-7 ISBN (Print): 978-90-832323-0-0

DOI: https://doi.org/10.55060/b.p2fg2n.220215.000

For reference purposes, please cite this book as follows:

P.E. Ricci, J. Gielis. From Pythagoras to Fourier and From Geometry to Nature. Athena International Publishing, Amsterdam, 2022. DOI: https://doi.org/10.55060/b.p2fg2n.220215.000 For Teresa and Christel

"Primary causes are unknown to us; but are subject to simple and constant laws, which may be discovered by observation, the study of them being the subject of natural philosophy... Profound study of nature is the most fertile source of mathematical discoveries"

J.-B.J. Fourier (preliminary discourse to the *Theory of Heat*)